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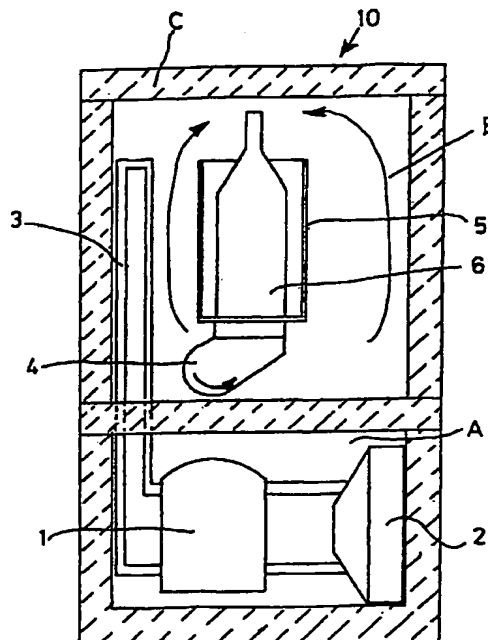
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(54) **Instantaneous cooler for liquids and the like or solids**

(57) A device (10) is put forward for cooling one or more bottles (6) of wine or other solid foodstuff to an optimal usage temperature which can be controlled by a timer which sets the time the product remains in the cooling device (10) and operates a fan (4) which circulates the cold air surrounding an aluminum container (5) holding one or more bottles (6) to be cooled to the desired temperature.



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Description

[0001] The present invention refers to oenological sector and in particular to the problem of rapidly cooling wine to its ideal consumption temperature which is different for each type of wine.

[0002] Usually in catering in order to conserve wine so that it is ready to be served when wanted, large sized refrigerators are used with separate compartments for the different types of wine operating with a coolant composed of glycol and water maintained constantly at a temperature of -40°C. This fluid is fed into a bag which covers a single bottle or wraps around several bottles, but this system has several drawbacks:

1) the system requires a loading and discharging pump for the coolant and these operations require time and high electric capacity;

2) glycol takes about 24 hours to reach a temperature of -40°C therefore this requires a long waiting period;

3) to transport glycol a cylinder must be used so the user has always to procure this fluid which, besides other things, with time and use evaporates and may form unwanted ice.

[0003] The instantaneous cooler for liquids or solids in this invention uses on the contrary ambient air cooled by a secondary closed circuit refrigeration plant and in particular

1) maintains a low temperature automatically;

2) there are no problems of loading fluids in that the closed refrigerator unit uses refrigerating gas allowed by the laws in force;

3) there is no danger of freezing.

[0004] The present invention is illustrated making reference to the Sole figure which schematically illustrates the device consisting of two chambers, one for the primary fluid A and the other for the secondary fluid B.

[0005] The container of the device 10 is made up of either insulated sheet or other suitably insulated plastic material walls and is divided into two chambers: the bottom one A contains the primary refrigerating fluid circuit and the secondary B allows the cold air to circulate around the object to be cooled in the top chamber B.

[0006] The primary circuit comprises the compressor 1 and the coil evaporation battery 2, the type usually used in refrigerators, and the piping 3 which closes the primary cooling circuit entering the second chamber B which simply contains ambient air. A cover C which is openable and is closed with a sealing clamp (not shown) allows one or more bottles 6 to be placed in the

container 5 made of aluminum sheet. The cooling circuit can be kept operating permanently and if cover C is not opened, a constant cold temperature is obviously maintained. When the bottle is needed it is placed in the aluminum container and the fan 4 is switched on using a timer switch and the air in circulation, controlled by the timer, cools the bottle to the desired temperature. A table is supplied together with the device and this table, on the basis of the number of bottles and the type of wine to be cooled, sets the time the bottle or bottles have to remain in the container 5 to reach the desired temperature.

[0007] Once cooled and the number of bottles needed have been taken out the fan can be switched off and the cover 5 closed thus maintaining a constant cold air temperature in chamber B of the device. An automatic thermostat can be provided to maintain the coolant and the air temperature in chamber B at a set low so as to have the device always ready at the times when most needed by the restaurant, that is for meals at midday and in the evening.

[0008] The instant cooler presented may be manufactured in different models according to capacity (1 or more bottles) and may have different shapes and sizes, furthermore it can have a special compartment for instantly cooling solids such as gelatins, puddings, vegetable soups, etc. which are placed inside through a side door.

[0009] Liquids contained in cans can also be cooled of course.

[0010] The advantages of the device are mainly as follows:

1) the cooling circuit rapidly reaches the required temperature in a few minutes and can be automatically kept at this temperature;

2) there are no problems of loading/discharging coolant;

3) there is no risk of freezing;

4) special timers can be programmed to maintain an optimal cooling temperature in chamber B during the times when needed the most so that the device is always ready for use and all that is required is to place the drinks or solid products inside;

5) provision is also made for a smaller sized device for domestic use;

6) use can also be made of this device in hospitals for rapid cooling of blood and other body fluids for bacteria free conservation.

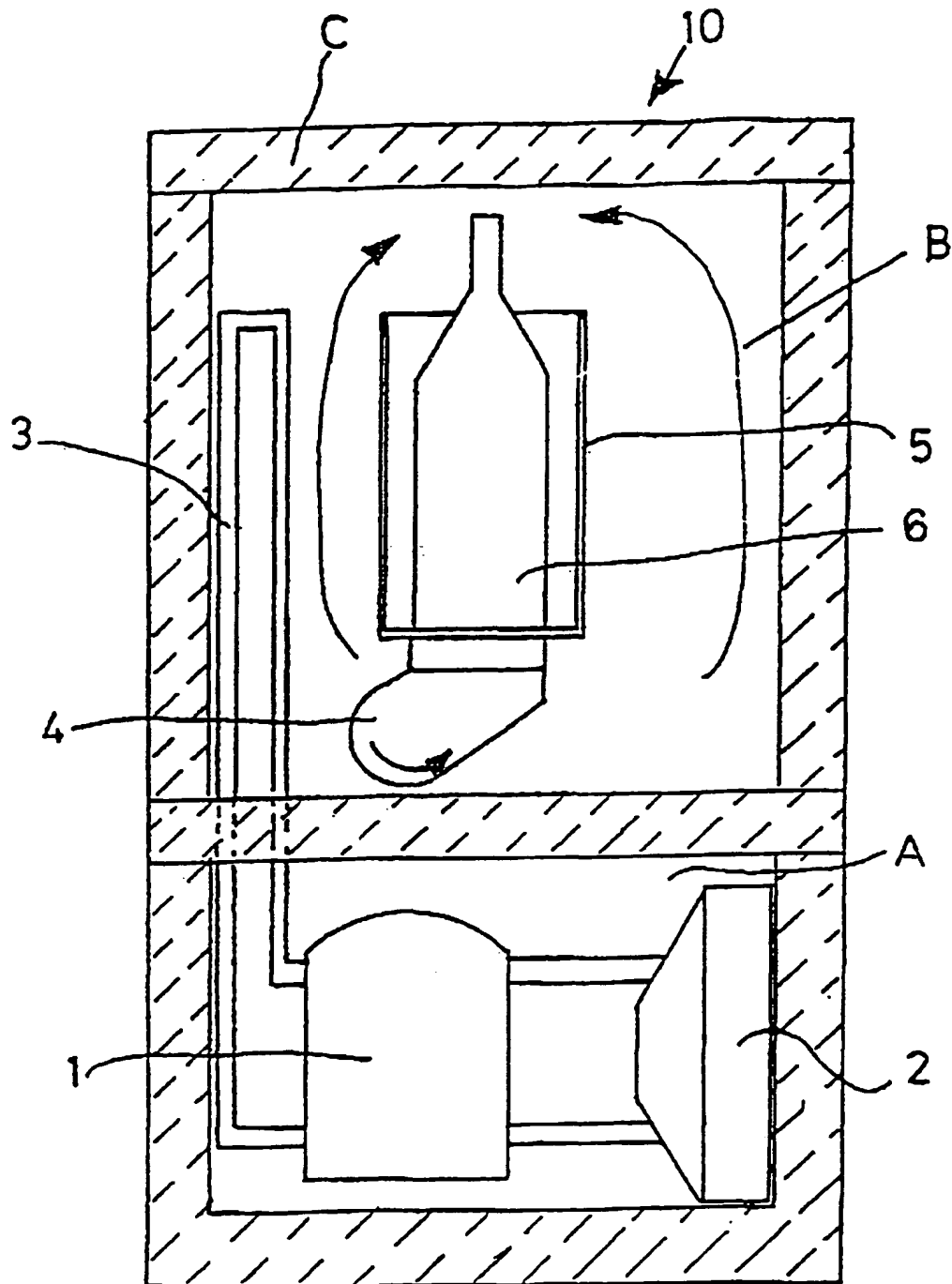
[0011] Whereas the invention has been illustrated and described in particular in reference to its preferred con-

structional shape, it will be clear to those who are experts in the field that various changes in its shape and details can be carried out without departing from the scope of the invention as defined in the following claims.

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Claims

1. An instant temperature cooler for liquids or solids, in particular wines or solid foodstuffs, comprising a container of the device which is made of insulated sheet walls or other suitably insulated material, even plastic, divided into two chambers: the bottom one (A) containing the primary coolant circuit and the top one (B) containing cold air in circulation; the primary circuit is made up of a compressor (1) and a coil evaporation battery (2) for refrigerators and tubing (3) which closes the primary cooling circuit entering the top chamber (B), which contains air and a fan (4) for circulating the air; the top chamber (B) of the container has a folding, closable cover (C) which can be sealed by means of a clamp and through which one or more bottles (6) can be placed in the aluminum sheet container (5) inside the top chamber (B).
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2. The device in claim 1, in which the (A) and (B) chambers may be arranged in any combination even different in lay-out and shape from the one illustrated in the Figure.
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3. The device in claim 1, also equipped with a timer which regulates the time a bottle of wine or some other liquid or solid has to remain inside the device and to regulate the running time of the fan after the external cover has been closed so as to reach a final temperature of the product.
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4. The device in the preceding claims, also equipped with a programmable timer in order to set the running time of the compressor (1) in order to achieve an optimal temperature at all times so as to have the device at the cooling temperature required and to maintain it constant during the period the device is most used.
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5. The device in the preceding claims, which, when provided with a suitable loading door and supporting shelves, can be used in particular for cooling solid or semi-solid foodstuff.
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6. The device in the preceding claims, having in particular a suitable size for domestic use.
7. The device in the preceding claims which, with opportune temperature regulations of the coolant can be used in particular in hospitals for rapidly cooling and conserving blood or other body fluids free from bacteria.
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EUROPEAN SEARCH REPORT

Application Number
EP 97 83 0735

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	WO 97 30317 A (PERSSON PER OSKAR INGFA AB ; PERSSON PER OSKAR (SE)) 21 August 1997	1, 2, 7	F25D11/00 F25D17/06
Y	* page 5, line 13 - page 9, line 15; figures 1-6 *	3, 6	
Y	GB 2 301 172 A (CHILLA LIMITED) 27 November 1996 * page 3, paragraph 5 - page 5, last paragraph; figures 1-5 *	3	
Y	DE 19 24 574 A (NAGA AMER) 26 November 1970	6	
A	* page 8, paragraph 7 - page 16, paragraph 1; figures 1-6 *	1, 2, 5	
A	US 5 590 541 A (RAINWATER JULIUS H) 7 January 1997 * column 2, line 62 - column 5, line 43; figures 1-6 *	1, 6	
A	DE 16 01 925 A (STRICKER HEINZ) 4 March 1971 * page 5, last paragraph - page 9, paragraph 1; figures 1-3 *	1, 2, 6	TECHNICAL FIELDS SEARCHED (Int.Cl.6) F25D F25B
A	US 2 387 622 A (TANNER ELO C) 23 October 1945 * page 1, left-hand column, line 40 - page 2, right-hand column, line 70; figures 1-7 *	1, 2, 5, 6	
A	EP 0 101 906 A (CROUCH MICHAEL D) 7 March 1984 * page 6, last paragraph - page 15, paragraph 1; figures 1-5 *	1, 7	
A	FR 2 124 186 A (COQUILLAT JEAN) 22 September 1972		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 3 June 1998	Examiner Boets, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03/82 (P4/C01)



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Application Number
EP 97 83 0735

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 4 711 099 A (POLAN GEORGE S ET AL) 8 December 1987 ---		
A	EP 0 278 884 A (JOLY RICHARD) 17 August 1988 -----		
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 3 June 1998	Examiner Boets, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date O : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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